

Fielding the Best Equipment to the Best Army in the World

Michael I. Roddin and Michael J. Varhola

Army AL&T Magazine recently spoke with LTC John Lemondes, Product Manager Clothing and Individual Equipment (PM CIE), Fort Belvoir, VA, about some of the latest items being fielded to units engaged in the defense of freedom's frontier.

When you look at a Soldier — no matter what his mission is, no matter what the environment he's operating in — from head to toe, everything that he has on him, except for sensors, lasers, optics and lethal weapons, comes from PM CIE — 273 items in all. (U.S. Navy photo by PO1 Jeremy L. Wood.)



AL&T: Briefly, what is PM CIE's mission?

Lemondes: Our mission is to continually upgrade, optimize and field the latest, most capable individual equipment possible for our Soldiers. What we try to do in our pursuit of functionality is make sure that whatever we're fielding has lower weight, less cube and more functionality than the item it's replacing. If we can achieve cost parity or cost reduction, that's good as well. We do look for economy of scale whenever we can, but sometimes the items that we buy are more expensive because we're paying for best value and higher capability for our end users — Soldiers.

AL&T: So your emphasis is on best value, not lowest bid?

Lemondes: Absolutely! Let me rephrase that question for you to answer: Given the opportunity to walk out of here into, say a cold weather environment with heavy snow, subzero temperatures and biting wind, just like the 10th Mountain Division's Soldiers were experiencing in Afghanistan this winter, would you want the lowest bidder providing your cold weather gear or the manufacturer with a product performance-based reputation that can deliver best value when and where Soldiers need that equipment most? We are always looking for products with the best capability, most functionality and lightest weight that assures the best value for our Soldiers.

AL&T: Talking about your mission a bit more, how do combatant commander and Soldier requirements

find their way to your organization for development?

Lemondes: Let me answer that question a couple of different ways. First, there is the traditional means. You have the U.S. Army Training and Doctrine Command (TRADOC) Directorate of Combat Developments (DCD) and TRADOC Systems Manager Soldier who are the user representatives. The DCD gathers the requirements and then coordinates them via a worldwide staffing process. Once the Soldier requirements are developed and substantiated, DCD gives us requirements and supporting documentation, and with that, we pursue materiel solutions. However, before we can pursue a materiel solution, we must go through a profile and see if



The 10th Mountain Division (Light Infantry) recently field tested the Improved Modular Sleep System depicted here. As PM CIE, LTC John Lemondes asked this rhetorical question, "Would you want the lowest bidder providing your cold weather gear in a cold weather environment with heavy snow, subzero temperatures and biting wind, or would you want a manufacturer with a product performance-based reputation that can deliver best value when and where Soldiers need that equipment most?" We believe the answer is obvious — take care of our Soldiers. (U.S. Army photo courtesy of PM CIE.)

there was something in the requirement that could be done prior to deciding to spend more money and buy something brand new.

However, given the Army's high operations tempo, the traditional system doesn't always work. The requirements process isn't agile or flexible enough to deal with emerging requirements from theater. As a result, combatant commanders will use an Operational Need Statement to address these unforeseen requirements. Given our operational flexibility and the numerous partnerships we have with the commercial sector, we can quickly develop, test and evaluate commercially available materiel solutions to defeat the new threats. The bottom line: we're working as fast as the acquisition process allows to fill combatant commander and Soldier requirements as quickly and cost-effectively as possible.

We primarily deal with the Infantry DCD at Fort Benning, GA. We also work closely with the Aviation DCD at Fort Rucker, AL, and the Mounted DCD at Fort Knox, KY, but the bulk of our coordination — 80-85 percent — is with the Fort Benning DCD. So when you look at that in terms of the

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scope of what we have to support and who we have to supply, you see how overwhelming it is for everyone involved in the process. PM CIE has approximately 273 different items of individual equipment, organizational clothing items and uniforms. Put another way, when you look at a Soldier — no matter what his mission is, no matter what environment he's operating in, no

matter who the enemy is — from head to toe, everything that he has on him, except for sensors, lasers, optics and lethal weapons, comes from this office. Dress uniforms, T-shirts, socks, boots, rucksacks, cold weather equipment, ballistic protective equipment, sleeping bags, hydration systems, parachutes, take your pick — it's all part of the 273 items we supply. So to look at the impact of the PM CIE mission on the Army, just think in these terms: "We touch every single Soldier, everywhere, everyday." It doesn't matter where they are, it doesn't matter what they're doing, it doesn't matter who they are or what their mission is — we touch every Soldier, every day.

This brings us back to PM CIE's overall purpose, which is to upgrade and optimize equipment. From an operational standpoint, that means we are improving

the survivability, lethality and comfort of Soldiers. That's the real crux of it. When you get right down to it, we make people more comfortable, more capable, more lethal and more survivable. We help make better Soldiers! There's no other PM shop in the Army that touches Soldiers in the manner that we do.

AL&T: What is the most significant product that PM CIE has recently tested and fielded to Soldiers on the front lines?

Lemondes: Let's discuss some products that have direct life-saving benefits. The Improved First Aid Kit [IFAK], for example, is currently being fielded and one can only guess how many lives and limbs it will save. A key feature, the Nasopharyngeal Airway Device [NAD], will help mitigate one of the top three causes of Soldier battlefield deaths: choking. Specifically, the NAD helps clear the Soldier's airway. If he's choking from his tongue blocking the airway, saliva, blood, bones, teeth, facial trauma or throat trauma, the NAD can help the Soldier breathe more easily, ensuring oxygen is getting into the lungs. The NAD can be inserted into a Soldier's throat or through the nasal passageway or down the back of the throat at the top of the esophagus, bypassing the site where most choking takes place. The NAD allows the combat medic to bypass the Soldier's entire oral cavity, creating a clean airway from the nose into the throat, ensuring the continuation of breathing so the Soldier can be stabilized and then transported from the battlefield.

Another medical innovation included in the IFAK is the single-handed tourniquet. The Army's been around for 231 years, and we've finally developed a single-handed tourniquet.

This product is a quantum leap forward. When you look at what we do for a living, you can't help but ask, "Why didn't we have that product 10, 20, 50, 100 years ago?" When I think of the good fortune we've had in procuring this tourniquet in sufficient quantities to meet Soldier battlefield needs, I'm grateful we've been able to deliver this evolutionary product. We issued more than 31,500 IFAKs in FY05 and we'll issue approximately 361,000 in 2006 and 240,000 in 2007. It's a great piece of equipment and it has and will save lives.

Editor's Note: The contents of the IFAK include the NAD, single-handed tourniquet, a pressure dressing impregnated with an anti-hemorrhaging agent, adhesive tape and surgical gloves, all packed in a Squad Automatic Weapon (SAW) ammunition case. PM CIE worked tirelessly with PM Medical to procure the IFAK components.

AL&T: How does the new Army Combat Uniform (ACU) enhance Soldier performance? What is the general Soldier reaction to the new ACU and is it being well received?

Lemondes: I'm going to give you the good, the bad and the ugly on this. The new ACU has a general approval rating of more than 90 percent. Of the units to which it has been fielded, most Soldiers absolutely love it. There are, however, some units and some Soldiers who don't like it. You're going to find that with any type of new equipment, regardless of what it is. We have had our fair share of complaints that we've addressed as quickly as our manufacturing process allows. With respect to immediately identified technical failure points, we've addressed them, quickly, in only a few months, sometimes less than that. Let me give you an example

of some of the things that have gone wrong which we have fixed, then I'll get to the things that this uniform does that the Battle Dress and Desert Combat Uniforms [BDU/DCU] don't. Using my own uniform as an example, and I'm wearing an older one, you see that the waistband tends to fray. This uniform is five months old and it has had largely only garrison duty — I've done a few parachute jumps in it, but mostly garrison duty. On a typical Soldier's field uniform, the ACU would be worn much more and much harder than I do in garrison. So pretty quickly, from our own testing, we knew we had some challenges ahead of us.

So one of the things we've done is change the waistband material and make the band wider. That's one failure point. Another was that the crotches in the uniforms were splitting. By quickly addressing the problem and finding potential solutions, we were able to immediately resolve this challenge as well. The uniforms with reinforced crotches are being fielded as we speak. Because we received immediate feedback from the field, we identified the potential material failure and fixed it relatively quickly.

AL&T: Was it a failure of the material, the seam or a combination of both?

Lemondes: Look at this uniform like you would the summer-weight BDU. It is the same thing — 50-50 nylon-cotton ripstop fabric, so the blend and weave is exactly the same. You're looking at the summer-weight BDU right now, in a different pattern, with different technical features. I have a pair of

my own summer-weight BDUs that I like to use as an example. You can definitely see wear spots and other defects. It doesn't matter how you care for it, you're going to wear this uniform out, especially in combat duty. The current wear-out rate for this uniform in combat duty is six months. Don't expect to put this uniform on a Soldier and think he's going to complete a deployment to Iraq or Afghanistan with it. It's not going to happen!

The "problems" we are dealing with are simply educational. This uniform has additional washing instructions that have to be followed. These instructions are different from the old directions for the BDU, DCU and first ACUs. If the directions are not followed, the material will deteriorate more quickly. So there is a learning curve that we simply have to get out to the force, and we're doing things to expedite that process. We published an article in *PS Magazine* and

I recently did an interview with the Pentagon Channel. The Pentagon Channel interview was a little different. My message was primarily about identifying knockoffs and informing Soldiers not to buy knockoffs. During the program, I showed the audience some sample knockoffs and tried to drive home the point,



The IFAK was recently fielded by PM CIE and has direct life-saving benefits for Soldiers injured in combat. The IFAK includes the newly developed NAD, the single-handed tourniquet and a pressure dressing impregnated with an anti-hemorrhaging agent. (U.S. Army photo courtesy of PM CIE.)

Army Combat Uniform

Patrol Cap constructed with double thick bill and internal pocket

Moisture-wicking tan T-shirt

Mandarin collar worn in the down position

ACU with pin-on skill badges

Hook-and-loop tape backed rank and insignia

Elbow Pouch with hook-and-pile tape closure for internal elbow pad inserts

Slide fastener front closure, reinforced with hook-and-loop tape, which provides a smooth surface when worn with the OTV

3-slot pen pocket for easy access, optimized for use with the OTV

Knee pouch with hook-and-loop tape closure for internal knee pad inserts

Leg cuff with front closure tie, which allows more comfortable closure on the outside of the boot collar

ACU with Boonie Hat

Hook-and-loop tape backed U.S. Army and last name tape

Tilted chest pockets with hook-and-loop tape closure, optimized for use with the front opening of the Interceptor Body Armor Outer Tactical Vest (OTV)

Infrared (IR) feedback American flag that provides both day and night recognition for friend or foe identification

Integrated blouse expands for increased upper body mobility

Hook-and-loop tape sleeve cuff closure, which provides positive closure for all sizes

Expandable calf storage pocket with hook-and-loop tape closure on the left and right legs

Combat Boot hot weather, or Combat Boot temperate weather

ACU worn with the Black Beret

Hook-and-loop tape-faced shoulder pockets that allow for the wearing of unit patches, skill tabs, and recognition devices

Permanent IR feedback squares affixed to each shoulder for nighttime identification

Shoulder pocket maximized for storage when wearing the OTV—easily accessible on the left and right shoulders

Mandarin collar worn in the up position to keep out debris and protect the neck when wearing the OTV

Forward tilted cargo pocket for easy access whether sitting, kneeling, or standing—incorporated elastic drawstring for positive closure on the left and right leg

ACU design is maximized for use with the OTV, with easy access pockets and maximized storage space

“Wait until the Clothing Sales store gets them in. Don’t waste your money on cheap imitations.”

There are a lot of reasons why you shouldn’t buy knockoffs. Also, the ACUs are now available in the clothing bag and issued to units by the Project Manager Soldier Equipment fielding teams. Nevertheless, some Soldiers aren’t going to listen and they’re going to go out and buy their own. And the range of mimicry is extreme, all the way from the tops having button-down pockets — instead of zippers and Velcro® — like the old BDU. Counterfeiters have gotten so savvy that they’re manufacturing the tags in the collar with false NSNs [National Stock Numbers], so a Soldier thinks, “That looks like a government-issue NSN, this has got to be real.” Keep in mind that knockoffs won’t have the glint tape. Talk about a positive feature that can mean the difference between life and death; the ACUs have them, and that’s something that the old BDUs don’t have.

AL&T: How does glint tape make the difference between life and death?

Lemondes: Because at night, it allows friendly forces to see you with low light/night vision devices in the near-infrared [IR] spectrum, and, as a result, can reduce fratricides. That’s the intent. A Soldier wearing a nonstandard knock-off puts himself and his unit at risk.

When you get right down to it, very little is right on these knockoffs. The pockets are not the right size, metal versus plastic zippers — the list goes on and on. The bottom line: the new ACU is much more capable than the one that it replaced, and the BDU is considerably more expensive when you compare raw purchase price; maintenance price; having to sew on patches, rank, name tags, etc.; and laundering. The ACU has wrinkle-free treatment applied to it, so

it’s wash and wear. Let’s look at it from a cost perspective. This uniform (see figure on Page 44) costs approximately \$78. The old BDU was approximately \$56. So when you are posed with the argument, “Well, the BDU is cheaper, we should have that, and it lasts longer,” well, it’s actually untrue. You will make up the cost difference in this uniform in comparison to the BDU in one cycle of professional dry cleaning — which you’re not supposed to do anyway on the BDU, but everybody did, and it degraded its IR capability. In one cycle of dry cleaning, and buying all of the patches and sewing them on, you have made up that cost delta. So when you look at the overall life-cycle cost to a Soldier to maintain a set of ACUs versus BDUs, it is significantly cheaper.

Let me address some other ACU technical features. First, you’ve got built-in knee and elbow pad holders — pockets at the knee and elbow — so Soldiers can put foam pads in there. And then for different types of missions and units, the uniform can be “sterilized quickly” — all insignia and patches can be removed. The ACU is a very flexible uniform, especially the back for larger men, which is a huge improvement because you don’t have that tightness that



PM CIE LTC John Lemondes discusses some of the life-saving benefits of the new IFAK with the authors. He also discussed the strengths and weaknesses of the ACU he is wearing and what uniform improvements his team has directed the uniform manufacturing community to make. (U.S. Army photo by Mike Roddin.)

you did with the BDU. The hook and loop on the sleeves is also a nice feature. The ACU has a lot more pockets and drawstrings on one of the trouser cargo pockets, so you don’t have to worry about items shaking out. Soldiers absolutely love these features.

And the most important thing about this uniform is that this wasn’t an Army Acquisition Corps force-fed item — “here’s your uniform.” We had upfront Soldier involvement with the design, testing and fielding process the whole way.

AL&T: You mentioned that this uniform was made from a summer-weight cloth. Is this uniform then primarily for summer or warm-weather environments?

Lemondes: This uniform is for all three environments: woodland, urban and desert. What we found was that, regardless of where they’re stationed, Soldiers prefer the hot-weather BDU to the heavier-weight temperate-weather BDU. And with the improvements in layering systems and undergarments — you know, the older polypropylene or newer silk-weight underwear and a variety of items now available in the inventory, that has allowed Soldiers to turn around and use the uniforms they prefer, regardless of where they’re located. That’s primarily why we chose this fabric.

AL&T: So, everything from parkas and field jackets will be available in the same pattern for cold-weather wear?

Lemondes: We are going to the universal camouflage pattern [UCP] conversion for everything. What makes this pattern so versatile is there’s no black in it like the old BDU. The reason black was removed is because the naked eye discerns movement of anything black before any other color. By having that black removed from the pattern, you

remove a lot of potential for detection from the Soldier's uniform.

AL&T: And the intent is that the ACU will perform equally well in woodland, urban and desert environments?

Lemondes: Yes. The ACU might not be the best in any one of those environments, but it's the best all-around uniform for all of those environments. We will be converting pretty much everything else in the inventory over to this pattern, which, as you might imagine, is a considerable challenge. Just getting the uniform manufacturers stocked with these materials and making this pattern was challenging, and now you're talking about all materials that are used — from NOMEX®, Cordura®, various nylons and cotton for T-shirts — having to be produced in completely new colors. You see the primary T-shirt is no longer dark brown, it's sand colored. Everything is changing to the new color pattern. We actually have to go back to the fabric houses and get them to start rolling out thousands and thousands of yards of the right material just to send to the "cut-and-sew" vendors.

Plus, all the other components such as barrel locks, plastic materials, threads, tapes — all the individual components you don't even think about — have to be transitioned. Keep in mind that unit patches, and there are probably close to 500 unit patches Armywide, all have to be manufactured with hook-and-loop fasteners on them. As you can see, this uniform changeover had a fair amount of built-in challenges just from a sheer volume standpoint.

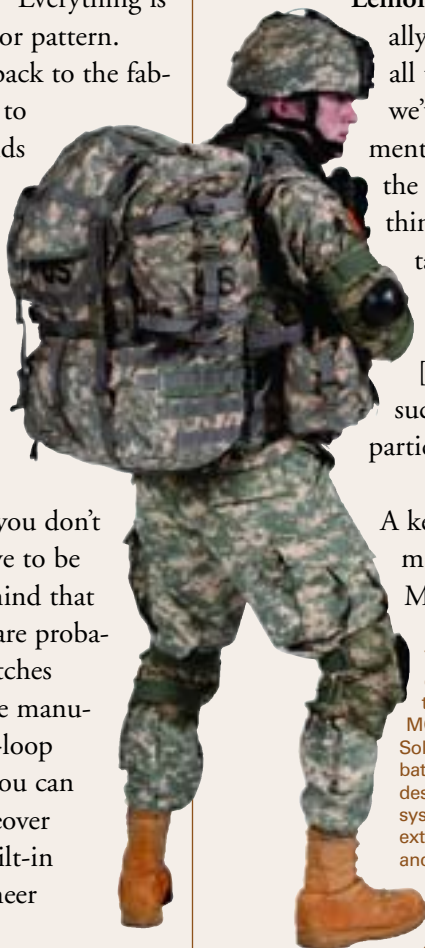
Transitioning completely over to the new pattern will take some time, which is why there is a mixed-wear policy in place. As units get fielded, you'll still see them wearing woodland or desert components with the ACU for the next couple of years because it's going to take time to replace all uniform items. The mixed-wear policy is in place through 2008. So, it's a pretty significant thing to stand up the entire industry base in America that makes uniforms and cuts and sews for the military to make it in this pattern. Given the Active and Reserve Components, it's a big Army.

AL&T: What other Program Executive Office Soldier programs is PM CIE actively supporting? What new clothing or equipment is on the immediate horizon for either Soldier testing or actual fielding?

Lemondes: We could literally talk for hours about all the new products we've got in development. I'll try to narrow the focus to something I think is really important. The Modular Lightweight Load-carrying Equipment [MOLLE] is one such product we're particularly proud of.

A key point I want to make is that the MOLLE rucksack is

The MOLLE rucksack, depicted here, is replacing the Alice system. The new MOLLE will revolutionize how Soldiers outfit and go into battle. This new ruck was designed with the Soldier as a system in mind so it is extremely modular, flexible and versatile to be reassembled based on whatever the operational mission calls for. (U.S. Army photo courtesy of PM CIE.)



replacing the Alice system. What your readers need to know is that this new system is generation three-plus. Many Soldiers out there hear MOLLE and they think, "MOLLE's garbage, I had that and my frame broke." With this new frame, the ergonomics are much better than the previous generations. You could shoot it, you could drop it, you could drive over it, you could take the two biggest men in the world you could find and have them try to pull it apart — nothing will break it. I have personally seen it with bullet holes in it and seen it dropped from 30 feet with 80 pounds on it. It's a polymer made in conjunction with the automotive industry and it's really good stuff. This new MOLLE will revolutionize how Soldiers outfit to go into battle and will dramatically outperform the previous versions that were tested in 2000 and 2001.

There are approximately 260,000 sets of this version of MOLLE in the Army inventory right now. MOLLE is much more than just a backpack. In fact, it's a load carriage system designed to integrate with current body armor and uniforms. The large ruck is what Soldiers will deploy to the field with and it will contain all of their basic essentials. The key point I want to emphasize is that what we're trying to do is look at everything as it pertains to the Soldier as a system. And so, whether that's a sock or whether that's a pack, if you look at it systemically, then you see how it fits together better, thus, allowing better optimization.

Some key MOLLE features include the following:

- In the old days, you used to have to deal with clamps down on the sides of the waist belt to get the thing apart. That means that if it was sucked up against your stomach

or other gear, or you had another belt on top of it, it was physically impossible to get it off without help. Now you just hit a quick-release tab and it comes right out.

- With the new system, the straps adjust to your carriage. We're purchasing "one-size-fits-all" because the adjustable straps allow each Soldier to have a personally fitted pack. Alice packs did not have this capability and they didn't have the ability to actually handle heavy loads. The MOLLE will allow Soldiers to hang a whole bunch of equipment on it, and be able to carry the load high enough so it's over their hips.
- It has a broader kidney strap around the back for better support.
- The frame is anatomically shaped to fit your back better, but there's also compression space in there to allow you to wear an OTV [outer tactical vest] with SAPI [Small Arms Protective Insert] plates back there while you're wearing the pack. You wouldn't be able to do that with Alice because it's got an aluminum frame that pressed directly on your spine.
- You can jump this pack as well for airborne operations.
- Assembly includes an assault pack, where Soldiers can carry their Class V, their water and maybe a little food. You can actually buckle the assault pack right on top of the MOLLE ruck.
- One of my favorite features of MOLLE that is greatly improved from Alice is the breakaway shoulder straps. The shoulder strap connectors/snaps never used to hold up right, so a lot of Soldiers taped them shut to keep them from coming apart. However, if they had an

Transitioning completely over to the new pattern will take some time, which is why there is a mixed-wear policy in place through 2008.

emergency, they wouldn't be able to get it apart. But MOLLE's new snap system has been completely redesigned and it's a breakaway that works when you need to drop your ruck quickly.

- This pack is worn underneath and contains everything you need for your ammunition magazines. You

could put SAW ammunition in this, you could put a canteen in this and your IFAK. Then, you've got two grenade pouches as well, and you can load all sorts of magazines on MOLLE as well.

What MOLLE delivers is a core Rifleman's Set, which consists of your assault pack, your hydration system and your fighting

load carrier, and then you're going to get a large ruck. And we'll also have a series of other sets: a Medic Set, a SAW Gunner's Set, a Grenadier's Set and a Pistolman's Set with a drop-leg extender and a holster for officers. We do have an improved modular holster specifically for the Military Police Corps that will allow the use of a 9 mm with or without an ILWIP [Integrated Laser White-light Pointer]. A Grenadier, of course, would have all sorts of pouches that would affix to the front of the lightweight load-carrying equipment to accommodate the 40 mm grenades. There's also a shotgun panel that you can put on here for shotgun shells. We've also designed MOLLE vehicle panels for all sorts of attachments that you can put inside your vehicle, your Humvee, Stryker, whatever. The key is modularity and flexibility, to reassemble this based on what your operational mission needs are.

Previously, all Brigade Combat Teams were issued MOLLE. Now, all

deploying Soldiers will receive MOLLE. So that includes your Echelons Above Brigade Soldiers, which are your individual replacement Soldiers. They will now receive a complement of the MOLLE. All deploying Soldiers might find themselves in a combat situation, and they must have the same configurable system as everybody else.

Of course, there are knockoffs of the MOLLE out there. They are not made to the same standard and Soldiers should not waste their money purchasing them.

PM CIE supports Soldiers in operational environments and improves their survivability, situational awareness, health, safety, mobility, lethality and sustainability by providing state-of-the-art ballistic protection and safe, durable and operationally effective individual and unit equipment. PM CIE enhances survivability through technologically advanced tactical and environmental protective clothing and individual chemical protective gear.

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